State of Wisconsin INTEROPERABILITY Initiative

GOAL 2 Communications Workshop & Wisconsin Interoperability Symposium March 22-24, 2011

Funded by Office of Justice Assistance In partnership with FVTC Criminal Justice Center for Innovation

WISCONSIN INTEROPERABILITY INITIATIVE GOAL

SEAMLESS PUBLIC SAFETY RADIO COMMUNICATION

The goal of the Wisconsin Interoperability Initiative is to create a dependable statewide solution to enable on-demand, real-time interoperable public safety radio communications. In response to traumatic events, effective communication between law enforcement, firefighters, emergency medical services, transportation agencies, and military organizations is vital to a successful emergency response. Interoperability allows multiple parties from different disciplines and jurisdictions to exchange information when and where it is needed, even when dissimilar systems are involved. Communication interoperability among responding agencies can make the difference between life and death—between minimizing casualties and yielding to a disaster.

THE RESPONSE-LEVEL COMMUNICATIONS WORKSHOP

DETERMINING INTEROPERABLE COMMUNICATIONS CAPABILITIES IN YOUR COUNTY

Nancy Dzoba *and* **Jeff Dunmire** *represent the Office of Emergency Communications/Interoperable Communications Technical Assistance Program OEC ICTAP Contractor Support Team.*

Dzoba and Dunmire provided a better understanding of the National Emergency Communications Plan (NECP) for 2011 as they guided county-level participants through the data collection process for the (NECP) goals. They assisted with setting up user accounts for the web-based Response Level Communications Tool and shared tips for entry including the following:

- If the Certificate Error screen appears, click “Continue to this Website.”
- Not having a certificate is an issue with later versions of IE and Web-browser software
- If your cursor touches “notice HTTPS Certificate Correction Procedures” and you hover over it, it opens a dialogue box that must be closed before proceeding
- Gene Oldenburg, CASM presenter, golden@milwaukee.gov has specific instructions for bypassing log in difficulties

This web-based program http://www.publicsafetytools.info) can be used as an emergency communications assessment tool by emergency responders at all levels. CASM (Computer Assessment and Mapping) can also be accessed from this site. The website NECPgoals@hq.dhs.gov offers guidance for issues or questions on the data collection process as well as offering on-site workshops/webinars and current workshop schedules. Counties not in attendance are encouraged to arrange for the regional coordinator to walk the staff through the process.

INTEROPERABILITY WITH NEIGHBORING STATES

STATE INTEROPERABILITY LEADERS DISCUSS SEPARATE AND SHARED INTEROPERABILITY ACTIVITIES

Brandon Abley and Sgt. Mike Garland

Sgt. Mike Garland, *Statewide Interoperability Coordinator, Michigan State Police, Emergency Management & Homeland Security Division*, **Lansing, Michigan** recounted improvements in the Michigan Public Safety Communication System (MPSCS) including 54,000 radios on system, an increase of nearly seven and a half million push to talks from 2009-10 and the current upgrading from 6.9 to 7.XX. The original towers numbering 186 are now 225 and the subsystems employ Simulcast. The current system integrates voice and data. Michigan has seven Emergency Management Response Teams comprised of both local and professional groups whose projects are overseen regionally. Teams use SAFECOM guidance for planning. SAFECOM works to improve multi-jurisdictional and intergovernmental communications interoperability. A year ago, questionable activities along the Western border of Upper Michigan and Wisconsin uncovered interoperability issues. Michigan purchased radios, gave them to Wisconsin, and the talk across the borders is working well.

Jim Bogner and Joe Galvin

Jim Bogner, *Iowa Statewide Interoperability Coordinator (SWIC),* **Des Moines, IA,** stated that Iowa has a VHF system with a couple of 800 MHz systems and a license to build a 700 MHz broadband system when funding is available. A private leased radio system called RayCom is also prevalent in the state. Iowa is looking at a statewide system of systems to work together with bordering states. Since the FCC is still deciding on rules and regulations, Bogner maintained that broadband with commercial systems is in its infancy and is not a panacea for narrowband, VHF concerns, or land mobile radio which is going through a transition period. Meanwhile, Bogner reported recent interest among the states of Iowa, Minnesota, Wisconsin and cross-border groups to develop policies and interoperability guidelines. He also suggested an auxiliary communications course available for those such as amateur radio operators who may wish to be integrated into the National Incident Management System (NIMS).

Joe Galvin, *Deputy Statewide Interoperability Coordinator, Illinois Terrorism Taskforce*, **Chicago, IL** reported that Illinois has a total of 102 counties, 14 of which have completed their Communications Assets, with the bulk of the counties working toward completion. Assets include the following: TICPs and SCIPs, State of Illinois Platforms/Systems Channels, professional support, State Deployable Assets, and 16 Federal and locally available Unified Command Posts which are deployable across state lines. In addition, Illinois has 10 Illinois Transportable Emergency Communications Systems (ITECS) and Starcom 21. Starcom 21 is maintained, staffed, and managed by Motorola. That means Illinois pays a user fee for statewide coverage, is guaranteed current software, and has one radio for each public safety entity across the state.

Brandon Abley, *State Program Administration Coordinator* **St. Paul, MN**, outlined the *Minnesota Department of Public Safety ARMER/911 Program (now the Division of Emergency Communication Net)* implementation of its interoperability plan from its inception in 2001, when the DOT presented a plan to the legislature, to the present in which all state agencies are on the system. Currently, 95% of each county and 97-99% of the state has coverage leaving 72 sites to acquire coverage for total completion in 2012. 109 tower sites have VHF Interoperability Overlay and the Broadband Initiative is in Phase I. The PESIC Grant Program required establishment of a strategic technology reserve and possession of a trunk radio. Minnesota provided the grant match and covered the purchase configuration and installation of patrol stations in neighboring counties and neighboring states. Wisconsin is partnering with Minnesota on initiatives with Canada. At the present time, Abley said it was hard to get communications via radio internationally. "Often people don't know that help is on the way until they see a vehicle coming down the road. We don't have a legal right internationally without going through the MOU processes, so both sides of the border make sure that they can talk to each other."

DEPARTMENT OF HEALTH SERVICES COMMUNICATIONS UPDATE

HOSPITALS, AMBULANCES, AND EMS SERVICE PROVIDERS RELY ON PRE-HOSPITAL COMMUNICATIONS

Paul Wittcamp has been the *Wisconsin EMS Communications Coordinator* for the past 9 years. He represents *The Department of Health Services and EMS on the State System Management Group (SSMG), the Interoperable Communications Standards Group (ICSG), the Mutual Aid Frequency Coordination Group (MFCG), and he chairs the State Agency SCIP Implantation Group (SASIG)*. Wisconsin, Wittcamp stated, has 130 hospitals, 1800 ambulances, and over 750 EMS service providers dependent upon pre-hospital EMS Communications. Five components make up that system. They include public access to the EMS system, dispatch and coordination of response, medical control communications for patient-side communication with medical control, and interagency communications. From the time an emergency is called in, there are fifteen steps that EMS personnel must take from system access to completion of medical report and return to service.

The Wisconsin Hospital Emergency Preparedness Plan (WHEPP) involves various EMS and hospital communications initiatives. Among those initiatives are hospital radio and EMS ambulance dual head radio upgrades, cafeteria funding, patient tracking and WiTrac (Wisconsin Tracking of Resource and Communications). Patient tracking and triage is internet based, not two-way. WiTrac provides documentation statewide to manage an incident through sending alerts, knowing the diversion status of hospitals and knowing what resources are available to assist hospitals in need. What's down the road for EMS? Wittcamp said interoperability issues and studies along with new bands, new techniques, and volunteer training are in the EMS's future. He questioned whether the plan will be able to keep up with the demand and expressed a concern that EMS is sometimes missing at the table throughout the state and even at the county level.

MUTUAL AID: WISCONSIN NATIONAL GUARD COMMUNICATIONS UPDATE

INTEROPERABILITY IN DOMESTIC OPERATIONS THAT SUPPORT CIVIL AUTHORITIES

Master Sgt. David Owen is a *Spectrum Manager and a Communication Systems Integrator* for the *Wisconsin National Guard.* With 34 years of combined experience, he currently manages three functional areas including Frequency Spectrum, Cryptography, and Communications Systems. Owen reported that the Wisconsin National Guard's current infrastructure includes two mobile platforms and a cache of 80 handheld radios the majority of which are in the VHF Low Band. The mobile platforms will link civil authorities on VHF. Master Sgt. Owen cited the recent February *Groundhog Day Snowstorm Mission* to perform domestic operations in support of civil authorities as an example of the National Guard's interoperable capabilities. Handheld radios were deployed to each team, which in turn provided a successful liaison to civil authorities. Provider interoperability and statewide coverage are internal to the National Guard organization.

The proposed future communications infrastructure for the Wisconsin National Guard includes a dispatch console, four P25 conventional repeater sites at Fort McCoy, Baraboo, Madison and Milwaukee, and two low band base station sites in Baraboo and Milwaukee. 13 fixed sites as well as two additional mobile platform sites are also planned. The Master Sgt. also pointed out that using tower space can be achieved through a variety of partnerships with agencies such as the DOT who currently shares tower space with Baraboo.

THE FUTURE OF PUBLIC SAFETY WIRELESS BROADBAND

NEW ADVANCEMENTS IN TECHNOLOGY IMPACT PUBLIC SAFETY

Dave Kaun is *Chief Technology Officer for Elert & Associates*, *a technology consulting firm headquartered in Stillwater, Minnesota.* His background, spanning 40 years, includes public safety communications systems, wireless broadcasting, multimedia, telecommunication, and networking.

Kaun listed the following as evolving public safety technologies:

Broadband Wireless Including Long Term Evolution (LTE), WiMAX and HSPA+
Clearwire and Sprint support WiMAX today with AT&T using HSPA+ and moving to LTE later in 2011. Verizon launched 4G LTE in 35 major markets and more than 60 commercial airports coast to coast in 2011 and expected to cover 110 million Americans. What is LTE's impact? It will provide true mobile broadband (commercial/private) with IP-based supporting data, voice and video, lower the cost and latency, and create seamless mobility.

LTE/Broadband Questions

Who holds the FCC license for 700 MHz?
Who will be the early adopters?
How can a public safety entity afford LTE?

When will the full standards be released?
Will 2012 be the year for LTE?
Will 700 MHz narrowband be affected?

NG 911: The Dispatcher and Situational Awareness

One problem with short test to 9-1-1 is the dispatcher has no way to get back to the person. Receipt of an image is a similar problem. The Public Safety Answering Point (PSAP) challenge is to prepare for more information coming from different sources with differing capabilities such as cell phones and PCs with voice, video, text, image, and sound; autos with telematics (On-Star); and automated alarms and street cameras. At a recent trade show Harris Corporation had a program detailing the full picture to be displayed on the dispatch person's screen. New dispatch operations will need to support maximizing new sources of information, maintaining a record of the information, sharing the information between call take and dispatcher, pushing the information to the staff, and gathering updates.

In-building Wireless for First Responders

New National Fire Protection Association (NFPA) standards require buildings to meet minimum radio system coverage requirements or have a wired system supporting communications with an 8 hour battery. A building, where the radio system is performing outside the building but not within the building, meets the requirement for commercial buildings. Emergency Responder Radio Coverage must either be a wired system or provide expanded radio coverage to 90% of the building. Testing is on an annual basis for IFC Building Communication Requirements and is the responsibility of the building owner. The building owner is also responsible for submitting testing results to the public safety agency.

Automatic Vehicle Location (AVL) and Project 25 (P25) Network

At present a data server request can be made during a voice call for a GPS update. P25 Phase 1 trunking waits for voice to finish before sending data. P 25 Phase 2 trunking can share voice and data by time slots. A second radio may be needed to transmit GPS data. Broadband solutions for AVL data include air cards and private LTEs, which offer no wait for information and 10-second response time.

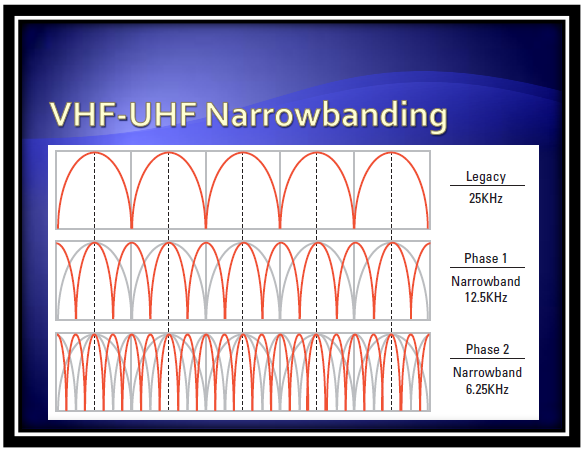
Secure Wireless

Wireless hotspots including in-buildings coverage, parking lots and garages, and base station sites are covered within 500 feet and secured by **Advanced Encryption Standard (AES)** and **Data Encryption Standard (DES)**. (AES) stops data forgery, frames eavesdropping, and replays while **IEEE 802.11w** protects wireless management traffic. Wi-Fi Protected Access (WPA2) security certification program supports various authentication methods. **RADIUS** is a separate type of authentication server by Microsoft which may also be used for non-wireless. **LED Illumination,** a new wireless communication technology, is based on visual light rather than radio waves. Researchers expect to piggyback data

communications capabilities on low-power light emitting diodes, or LEDs, to create "Smart Lighting" that would be faster and more secure than current network technology.

Narrowbanding

Narrowband is no longer just VHF and UHF. Technology improvements boost performance and provide more available channels. VHF and UHF must be converted by 2013 which may mean a loss of coverage. 700 MHz is already narrowband. Digital offers advantages over analog. Among those advantages are tighter channel pack, better output frequency resolution, faster output frequency switching, less phase noise time, and less space required to install its very small surface-mount. Digital is also competitive in cost with high volume application.



The Critical Operations Power Systems (COPS)

The 2008 National Electrical Code, Article 708, resulting from a National Fire Prevention Association (NFPA) task force study directed by the Department of Homeland Security, provides an additional level of protection for the electrical equipment and wiring in facilities considered critical. In the event of a natural or manmade disaster, vital facilities, that if destroyed or incapacitated, would disrupt national security, the economy, public health or safety, would still function. Article 708 impacts 24/7 communication centers by mandating 72 hour back-up power (not natural gas only), risk assessments to power sources, physical security of power wiring and CB panels, commissioning to be sure it works, and weekly checks under load.

FM3610 Approval Update

New FM guidelines effective as of Jan. 1, 2012, call for LMR portable devices to operate at power outputs of 0.5 watts or less — instead of the current 3-watt limit — to be deemed intrinsically safe (IS) as a Class 1, Division 1 device. Existing radios in a system would be grandfathered, but new radios purchased after 2012 would **not** be certified as intrinsically safe if they exceed the 0.5-watt threshold. For public-safety entities that want to maintain the IS standard for safety and insurance purposes, the proposed dramatic decrease in radio power levels could be problematic. It could mean maximum 1 watt radios (lower power levels) would drastically reduce the distance that a portable-radio signal could travel to reach a tower. LMR systems would have to erect more towers to maintain existing coverage, driving up infrastructure cost by a factor of five.

EASY INTEGRATION TO WISCONSIN INTEROPERABLE SYSTEM FOR COMMUNICATION (WISCOM)

INCREASE IN STATEWIDE MUTUAL AID CHANNELS AND SHARED COST

Joe Hayden, *VP of Sales for Totus Solutions*, and former *Director of System Sales for EF Johnson*, was responsible for the domestic and international sales and market strategy for system development. Previously, he worked at *Motorola* and held positions culminating in the management of half the *U.S. Utility Practice.*

Hayden stated that the Wisconsin Interoperable System for Communications (WISCOM) is a shared system that first responders in communities across the state will use to communicate during a major disaster or large-scale incident. WISCOM will support up to four simultaneous conversation paths during an incident. This will dramatically increase the current capacity available with statewide mutual aid channels, and will allow responders statewide to assist other communities without losing communication capabilities.

WISCOM is used outdoors or indoors, has 95% reliability, and 95% coverage of the state. It is portable and provides audio quality of DAQ 3.4. Hayden pointed out that because WISCOM leverages existing radio towers and other infrastructure, it results in less initial cost. WISCOM does not use proprietary technology, and is flexible since it works with a wide variety of local systems currently operating in the state. As communities replace their aging local systems, they will share infrastructure costs and will avoid costly duplication of equipment instead of spending millions of dollars on systems that do not allow interoperability. In the future, communities can build out added local coverage and capacity to meet their needs. The system will be easily expandable to multiple channels and sites due to the fully IP based architecture. IP offers no single point of failure, multiple backups to every call, and ease of routing voice and data on the same network. IP also provides re-use of existing network for shared applications, remote diagnostics and management, and the benefit of enabling interoperability as well as familiarity to IT personnel who have worked with IP.

WISCOM management by the Statewide System Management Group (SSMG) includes public safety executives from Federal, tribal, state, county and local law enforcement, fire, EMS and emergency management disciplines, ensuring that the project meets the needs of the entire public safety community. Virtual Private Networking (VPN) systems, used to create a secure connection between computers and networks, subscriber management, and statistical reporting will be monitored by SSMG.

APPLICATION PROCESS FOR *WISCOM*

NO COST TO EARLY WISCOM ADOPTERS

Kathleen Lordo was hired as the *Program and Policy Analyst for WISCOM* in 2010 after working for the *State Patrol's Bureau of Public Security and Communications* in 2008. In her role with WISCOM, Lordo participated in FCC Auction 87 and obtained fifty-five Part 22 VHF frequencies for the WISCOM system. She is also a member of the *700MHz and 800MHz Regional Planning Committees for Region 54*.

Lordo began by stipulating that interested persons not in public safety or service need to have an agency or sponsor. An application may be downloaded by visiting the website for WISCOM. The signature page is a PDF that documents the requirements.

User levels are as follows:

LEVEL 1 Interoperability/Mutual Aid Only-County-wide interoperability talkgroup, Regional and statewide tactical talkgroups

LEVEL 2- Itinerant/Travel-County specific statewide travel talkgroup

LEVEL 3- Includes LEVELS 1 and 2. Agency-specific talkgroups and use of WISCOM for daily mission critical communications and/or dispatching

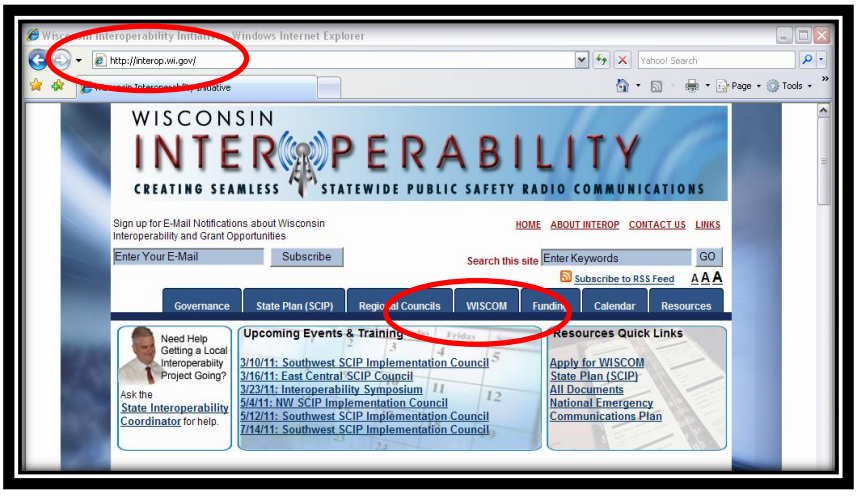
LEVEL 4-Includes LEVELS 1 and 2, agency-specific talkgroups and affiliated sub system

LEVEL 5- Includes LEVELS 1 and 2, agency-specific talkgroups and integrated build-out

LEVEL 6-Not yet available

Agencies applying for LEVEL 3, LEVEL 4 or LEVEL 5 must also complete two documents. The WISCOM Participation Plan is a questionnaire regarding plans to transition to or connect to WISCOM. The System Use Agreement is to be executed between the system and applicant. Both documents are being finalized. A current program allows early adopters of WISCOM to use the system for daily communications at no cost until 2015-2016. This program has a cap and is subject to cancellation when the cap is met. The SSMG is working to get a state appropriation for upkeep of WISCOM, eliminating the need for user fees.

Wisconsin's P25 Unit ID Plan assigns a unique radio identifier to all potential digital radios in use by public safety agencies in the state. These identifiers eliminate duplication of a radio ID, which causes operational issues in a digital trunking system, while maximizing the benefits of the embedded unit ID capability.



REGIONAL COORDINATORS: HERE TO SERVE

ASSISTING COUNTIES WITH COMPLIANCE AND INTEROPERABILITY GOALS

Tad Matheson is the *NW Regional SCIP Implementation Coordinator*. He served as *Fire Chief in Superior, WI* and retired after 33 years or service. He was the chairperson of the *Douglas County Local Emergency Planning Committee* and he continues to serve on that committee.

Tad Matheson and Jeff Stauber

Jeff Stauber is the *East Central Regional SCIP Implementation Coordinator*. He is the owner of *Safety Planning & Consulting LLC* which he began after retirement from the *Green Bay Fire Department* where he served as a firefighter, paramedic, and fire officer for 32 years. Stauber also serves as the *Emergency Planning Coordinator for the Green Bay Packers*.

Matheson and Stauber identified the other Regional Coordinators Northeast-Andrew Faust, Southeast-Gene Oldenburg, Southwest-Tim Pierce, and West Central-Eric Anderson before detailing their tasks.

Task one is to assist agencies migrating towards achieving narrowband operations, to define and gain consensus for a regional coordinated effort, and to document regional council progress towards a timetable and plan development.
Task two is completing plans, meeting with point-of-contacts, scheduling Tactical Interoperability Communications Plan (TICP) workshops, and updating existing TICPs within the region.
Task three is working with TICP & Mapping Database (CASM) that enters information on public safety agencies and radio systems.
Task four is assisting counties within the region on compliance with DHS Office of Emergency Communication performance measurement goals and to identify points of contact for each county.
Task five involves promoting evaluation of existing interoperable communications exercises and providing goals and objectives for communications' exercise planners.
The **final task** of regional coordinators is to be conduits for grant program information on planning communications projects, providing training or exercises, and purchasing equipment. Coordinators also share information on successful grant applications and promote regional collaboration. Matheson and Stauber are also willing to share lessons learned from their experiences.

(COML'S) AND THE WISCONSIN CAPITOL PROTESTS

COMMUNICATION UNIT LEADERS (COMLS) PUT TO THE TEST

Rick Lange

Rick Lange, *Supervisor of Dane County 911 in Madison, WI*, one of the first to do COML, and **James Westover**, *Police Communications Operator/COML, Wisconsin State Patrol - Waukesha Post*, *Waukesha, WI*, discussed how using COML helped coordinate the law enforcement presence during the recent Wisconsin State Capitol demonstrations.

James Westover

On February 11, 2011, Wisconsin Governor Scott Walker went public with the Budget Repair Bill. Starting February 14, the capitol filled daily with protestors, including some overnight sleepers. By February 18, the number of overnight sleepers increased to several hundred and swelled to 1,000 by the end of the protests. The Madison Fire Department Incident Command Post was set up on February 14th and fully staffed the next day. Inside the command post, agency representatives from the Capitol PD, Madison PD, Dane County Sheriff's Department, the DNR, Disaster Recovery Journal (DRJ), and the Madison Fire Department, assembled. By February 19, an estimated 50,000 protesters arrived at the capitol. During the 0700-1900 operational periods, there were 514 officers from local agencies and EPS units between interior and exterior branches at the capitol. COMLs changed communications plans daily based on staffing needs. All Capitol Incident COML's went through OJA's COML training program.

The initial communications plan used known channels—Madison PD 800 MHzTRS and PD Event C7 and Event C8 talk groups, Dane County's Channels 3 and 5 VHF repeaters, and the State Patrols MADTAC VHF repeaters. Radio operations were split between Interior Branches and Exterior Branches. Channels needed for each branch were patched together at the Dane County Communications Center with console patches. When testing the proposed February 19th communications plan, a nearby MARC repeater was found turned on. The repeater showed disabled at the dispatch console but was actually turned on and active. Another issue with the MARC 2 involved a helicopter. MARC2 is used by most medical helicopters in WI for landing zone coordination and medical information transfer. Helicopters landing at scenes where incidents are in progress can disrupt critical communications at the scenes and vice versa.

What did they learn from this incident? First, the incident reinforced the need for pre-planning and pre-programming. COMLs didn't know what they were going to need until it was required. Knowing the channels and making sure they were programmed was critical. Early on the need for location information about responding EPS units was noted. The establishment and use of a dedicated COML net for "internal" communications was a useful idea that surfaced. The request was made to have a COML present at officer briefings prior to deployment to resolve radio issues, and to have more than one COML at an incident. The proposal to establish and publish a travel net with EOS requests via TTY was made. It was discovered that agencies can cause unintentional interference to other users of the same frequency out of their home area as in the MARC 2 helicopter and repeater issues.

The conclusions they reached were the following:

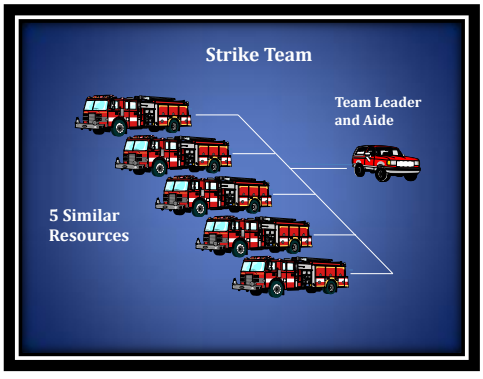
- Length of incident could not have been anticipated
- Agencies, personnel, patience and communications were taxed
- Great opportunity to learn from each other
- COML received positive feedback
- Mission was successful and a great training opportunity

COST EFFECTIVE ALTERNATIVES TO TRADITIONAL PAGING

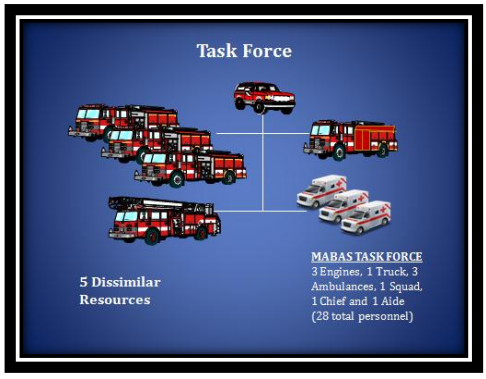
ACCESSING ALL AVAILABLE RESOURCES

Brian Satula, *Fire Chief for the City of Oak Creek, WI,* which he has served for 33 years, was recently named as *Administrator of Wisconsin Emergency Management (WEM)*. A member of the *Governor's Homeland Security Council*, Satula also serves as president of the *Mutual Aid Box Alarm System in Wisconsin (MABAS-Wisconsin)*, and he represents MABAS-Wisconsin on the *State NIMS Advisory Group*. He is on the *Statewide System Management Group for WISCOM* on the Governance Work Group and on *FEMA's Region V Emergency Communications Coordination Work Group*.

Satula addressed issues related to off-service paging and pointed out that alerting technology has changed from alert monitors placed in homes to outdoor sirens and air beep pager systems and the latest Minitor 5 pagers. He pointed out use of cell and smart phones for paging in emergency calls and accessing mass notification systems for weather, for school use through ConnectEd, and Municipalities and Emergency Management Connect CTY, Reverse 9-1-1, Code Red, City Watch and MyStateUSA in addition to using existing phone lines or internet. Satula addressed Married Mass Notification with Cell Phones via AlertSense. The system provides detailed call messages by e-mail, targets areas to send the messages to, updates daily, and uses a National No-Call Data Base.



Other tools outlined by Satula included the WI Fire Service Emergency Response Plan. This online Computer Aided Dispatch (CAD) is a field deployable system that allows departments to request specific resources such as a single resource command post, a task force, a strike team or special team such as HAZMAT or a dive team. MABAS/E-sponder Alerts notify selected divisions that have task forces and strike teams identified. Messages are sent to mission ready groups. Activation of the groups is in three steps—State Plan Activation, Pre-Tasking, and Tasking and Mission Assignment.



BACK UP DISPATCH: One County's Solution

HOW DO YOU DEAL WITH ISSUES AT THE PRIMARY CENTER?

Racine Fire Chief **Steve Hanson** presented issues facing Racine County in 2010 when they moved forward to consolidate dispatch centers for Racine County. They needed to find a reasonable solution to a failure of the primary center for both phone and radio traffic. Chief Hanson shared that the solution was to maintain a "cold" dispatch center. That meant upgrading an existing, unused center which would take 20 minutes to move dispatchers and to power up the center. Eight firefighters on each shift were trained for that purpose and weekly radio tests were conducted. Backup dispatchers received new training as well as refresher training. Redundancy in systems and a backup plan had to be developed. Backup radio options needed to be identified and a radio cache built up. Grant money was used to purchase radios as well as to develop a Quick Reference Guide for Emergency Personnel.

BENEFITS OF TICP PLANNING

IDENTIFY COUNTY INTEROPERABLE COMMUNICATIONS RESOURCES

Eric Anderson

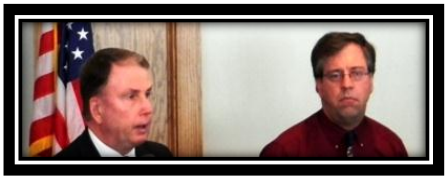
WC Regional Interoperability Coordinator, **Eric Anderson**, and **Andy Faust**, *NE Regional Interoperability Coordinator*, Wausau, WI discussed the benefits of Tactical Interoperability Planning. The Tactical Interoperable Communication Plan (TICP) documents the interoperable communications resources available with the county. That includes who controls each resource and the rules of use for activation and deactivation of each resource. The TICP plan is geared toward the public safety sector, although it recognizes the need for other entities to be involved in the planning process. Anderson and Faust pointed out that TICP provides a snapshot of radio equipment and methods of using that equipment in a tactical situation. TICP prepares agencies for tactical interoperable communication during incidents involving multiple agency responses.

To assist counties in creating a TICP, the state has created a general template for each county to follow. After a 2-4 hour meeting with the stakeholders, tasks are handed out and a workshop follows in 4-6 weeks. Gathered information is forwarded to the Regional Coordinator who enters the data into the template. All stakeholders attend the workshop. **Stakeholder participation is the key to success**. Everyone needs to be on the same page. When done correctly, the process brings the county TICP to 90-98% completion by the close of the workshop.

Contact Andy Faust afaust@ncwrpc.org or Eric Anderson eanderson@wcwrpc.org for more information. Go to www.interop.wi.gov for OJA e-mail notifications and RSS feed.

WISCONSIN MUTUAL AID COMMUNICATIONS FREQUENCIES

NARROWBANDING ALL STATEWIDE MUTUAL AID/INTEROPERABILITY CHANNELS



Chief Tom Czaja and Frequency Specialist Carl Guse

Carl Guse is the *Frequency Specialist in the Wisconsin State Patrol Bureau of Public Security and Communications*. He is the *DOT Project Manager for WISCOM*, the statewide trunking system. He is on the *Project 25 User Needs Subcommittee* and on the *Regions 45 & 54 700/800 MHz Regional Planning Committees*.

Chief Tom Czaja's law enforcement career spans 35 years, the last 15 as *Chief of Police for the Village of Fox Point, WI*. Chief Czaja serves as the *Chairperson for the Mutual Aid Frequency Coordination Group*. He has been a member the *State Interoperability Council* since its inception in 2005 representing the Wisconsin Chiefs of Police Association.

The Mutual Aid Frequency Coordination Group (MFCG) has been established as a committee of the State Interoperability Council to manage the statewide mutual aid/interoperability channel resources. MFCG outlines public safety mutual aid and on scene tactical radio communications frequencies available in Wisconsin in its Annex K document. All public safety and governmental agencies should implement these frequencies. A sixteen channel "National Zone" has been established to include the primary nationwide VHF interoperability channels. Whenever possible, mobile and portable radios should include these channels for interoperability use when leaving Wisconsin or working with agencies in other states.

The State Interoperability Council has established policy for narrowbanding of all statewide mutual aid/interoperability channels during the April 2011 to November 2011 timeframe. All VHF and UHF channels in the new Annex K document are narrowband. The list of 700 MHz interoperability and low power frequencies are now included. The changes listed in the document are to be implemented through the narrowbanding programming. Agencies should consider converting their communications system to narrowband operation in the 2011 mutual aid window, prior to December 31, 2012.

The goal is to have all MARC repeaters "idling". On occasion, a MARC repeater is left on when it is no longer in use. This can cause interference with other agencies that need to use their MARC repeaters. VTAC36 has been established as a portable tactical repeater channel. It combines VTAC11 as output and VTAC14 as input. A P25 digital version of this channel, VTAC36DG is also available for special operations, such a SWAT unit. These are Wisconsin only channels and are not part of the national plan.

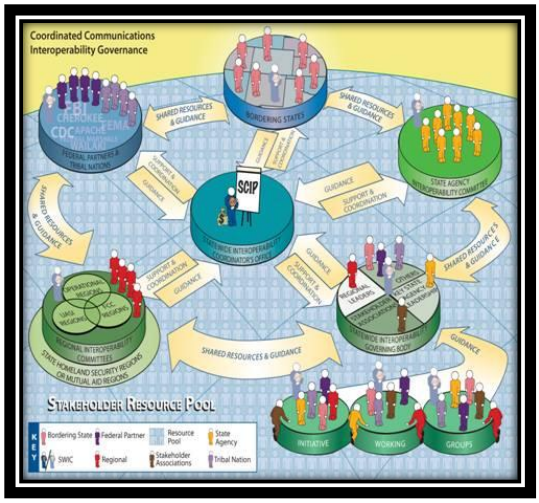
Columbus Tower:
Sites have been prepared for WISCOM with the addition of two VHF antennas. The existing microwave network allows for the sites to communicate with each other using Internet Protocol (IP).

DISASTER EMERGENCY COMMUNICATIONS: HOW FEMA CAN HELP

SUPPORTING THE NEEDS OF FEDERAL, STATE, LOCAL, AND TRIBAL GOVERNMENTS

Ken Howdeshell the *Disaster Emergency Communications Branch Chief with FEMA Region V* in Chicago, IL, leads FEMA's role in ESF #2 disaster communications response needs for the region. He also provides coordination for the FEMA-sponsored *Regional Emergency Communications Coordination Working Group (RECCWG).*

Disaster Emergency Communications must be integrated at all government levels to effectively serve as the backbone of emergency response. FEMA is the lead integrator of Federal resources during an incident supporting the needs of Federal, state, local, and tribal governments. FEMA coordinates efforts with other Federal agencies, industry partners, and are co-primary with NCS (National Communications Systems) for ESF #2 communications restoration and private sector support. It assists RECCWG and state-specific emergency communications capabilities assessments and annexes through FEMA-specific planning activities. Tactical Communications-Mobile Emergency Response Support (MERS)-teams provide Tactical Comms supporting the FEMA Federal response and in some cases to the states.



As mandated by Congress, The Department of the Homeland Security Act of 2007 established the RECCWGs to assess and address the survivability, sustainability, operability, and interoperability of emergency communications in the region. Membership includes Federal, state, local, and tribal representatives and coordination with the private sector. RECCWGs report annually on the status of its region in building robust and sustainable interoperable voice and data communications to the FEMA Regional Administrator, the Office of Emergency Communications **(**OEC**)** the Federal Communications Commission **(**FCC) and the National Telecommunications and Information Administration **(**NTIA**).** FEMA has principle responsibility to help establish and support the RECCWGs while the group's focus and direction is determined by the RECCWG members.

As resources permit, FEMA can provide a wide range of primary mission support through MERS that includes**:** Land Mobile Radio (LMR) support (VHF, UHF, 800 MHz), portable radios and repeaters, satellite communications, Line of Sight (LOS) microwave units, secure communications equipment, fax, and video teleconference, in addition to communications technicians to maintain and operate the equipment. MERS can also provide temporary communications infrastructure support, public alert and warning, and backhaul connectivity.

One the National Communications System (NCS) telecom priority service is Government Emergency Telecommunications Service (GETS). GETS is supported by all major service providers and grants priority

access to the public **wireline** network. A second service, Wireless Priority Service (WPS) is available through AT&T, Edge Wireless, Southern LINC, Sprint/Nextel, T-Mobile, and Verizon. Another service is Telecommunications Service Priority (TSP). TSP establishes priority for restoration/provisioning of NS/EP circuits and is supported by an FCC regulatory mandate.

FEMA DEC offers the following supports in disasters: plans and preparation for specific incidents; support to public safety; private industry restoration; OFA's comm's requests; and MERS/DEC real time situational support.

Howedeshell cautioned users to be aware of the polar shift which occurs every 10 years resulting in magnetic disruptions of the sun's surface and radio communications blackouts (emphasis on HF). Magnetic disruptions cause solar flares, radiation and geomagnetic storms which impact Earth's magnetosphere and ionosphere causing space weather disturbances. These disturbances can impact satellite communications and GPS, can disrupt polar commercial air flights, and can damage and disrupt power grids. Solar Cycle 24 is underway and will reach its maximum in 2013.

COMMUNICATION ASSETS & MAPPING (CASM): What It Can Do For You

ANALYZING DATA AND VISUALIZING INTEROPERABILITY GAPS

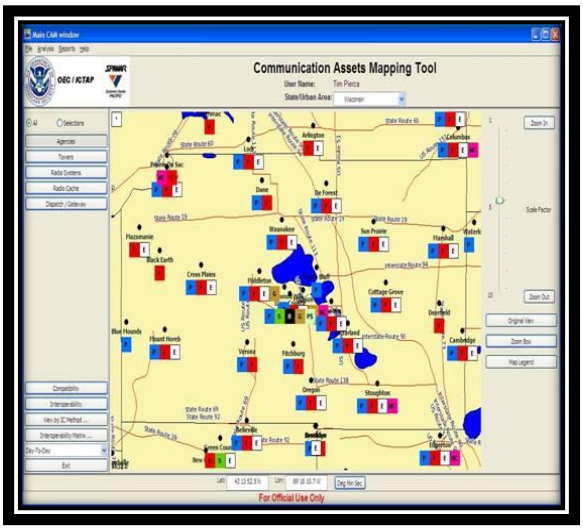
Tim Pierce is the *Southwest Regional Interoperability Coordinator* from Madison WI. In addition to his involvement with *Amateur Radio Emergency Service (ARES*), Pierce serves as the *Emergency Coordinator (EC) for Dane County ARES*.

Gene Oldenburg is the *Southeast Regional Interoperability Coordinator* from Milwaukee, WI, where he concluded a 32-year law enforcement career with *West Milwaukee PD*, 17 of those years as Police Chief. He was actively involved in the suburban law enforcement transition to the *Milwaukee County 800MHz trunked radio system*.

Pierce and Oldenburg explained CASM as a single database used to collect information about land mobile radio (LMR) systems and communications assets, about other interoperability methods, and about their use by public safety agencies that use them. In addition, CASM offers an analytical tool with mapping functionality to assess the types of communication interoperability available in a given area. The purpose of this tool is to assess public safety communications and interloper capabilities.

CASM benefits include making assets and interoperability available to authorized users within a state/UA/territory. It assists public safety agencies in understanding the interoperability methods used by neighboring agencies, by sharing information, and by providing access to up to date information. Once data has been entered into CASM, it eliminates repetitive data collection and makes maintenance of existing data easy.

Pierce logged onto the website for the Office of Emergency Communications-Interoperable Communications Technical Assistance Program (OEC ICTAP) to display and explain the Communications Assets Mapping Tool that can be used to collect reports on-scene by COMLs. The CAM includes TICP Ps that can be created and stored, need versus ability analysis, and "What-if" features.



CASM provides different ways to visualize potential interoperability between agencies in a state/UA/territory. It provides information for solutions to interoperability gaps. With its varied reporting options, it can be used to connect the dots of local, county, and regional operability.

REGIONAL INTEROPERABILITY AND NARROWBANDING

THE OEC'S EFFORTS TO PROMOTE NATIONWIDE INTEROPERABILITY

Steve Hanson

OEC's mission is to support and promote the ability of emergency responders and government officials to communicate in the event of natural disasters, acts of terrorism, or other man-made disasters, and works to ensure, accelerate, and attain interoperable and operable emergency communications nationwide.

Hanson pointed out the benefits of regional governance partnerships. They include providing agencies with access to knowledge (e.g., best practices and lessons learned) and with resources previously unavailable. Regional governance supports the pooling of resources, including capital, and provides alignment with grant guidance. New working relationships create stronger coordination within the statewide effort ensuring that voices and concerns are heard.

Narrowbanding requires VHF and UHF radios to use less radio bandwidth (i.e., spectrum), ensuring more efficient use of the spectrum and greater spectrum access with the potential to relieve channel congestion and to increase channel availability. "Refarming" is the informal name of a notice and comment rule-making proceeding to develop an overall strategy for using the spectrum in the private land mobile radio (PLMR) allocations more efficiently to meet future communications requirements. It is a proposed 10/20-year plan to quadruple capacity of PLMR channels through migration from 25 to 12.5 to 6.25 kHz channel bandwidth.

As of January 1, 2013, all Public Safety and Industrial/Business licensees in the 150-174 MHz and 421-512 MHz bands must either migrate to 12.5 KHz technology or utilize a technology that achieves equivalent efficiency. All radio systems—including voice, data (Supervisory Control and Data Acquisition [SCADA]) and telemetry—operating at VHF (150-174 MHz) and UHF (421-512 MHz) are affected. That includes the following typical VHF & UHF two way radio licensees and users:

Hospitals, Ambulance & Emergency Medical Services
Local Municipal Government Agencies & Public Works Departments
Public Safety, Disaster Response, EOC's & Search & Rescue

City, County & State Government Agencies
Wireless Data, SCADA, Telemetry & Private Radio Paging Networks
Industrial Plants, Manufacturing & Warehousing Facilities
Electric, Gas, Wind, Solar Energy Utilities
Mining & Natural Resource Exploration Companies
Highway, Railroad, Subway, Taxi, & Bus Transportation Services
Delivery, Logistics, Freight, & Shipping Operations
Airport Passenger Facilities, Security & Tarmac Operations
Marine Terminals & Port Operations
Automobile Towing & Heavy Equipment Recovery Companies
Trash, Refuse, Recycling & Disposal Services
Farming, Ranching, Agricultural & Nursery Services
Construction & On-Site Facilities Maintenance Services
School Districts, Universities & Colleges
Student Transportation & School Bus Operations
Convention Centers, Hotels & Hospitality Services
Coliseums, Sports Arenas, Stadiums & Golf Courses ……plus others!

Exceptions to this mandate include radio equipment that meets the FCC 4.8 KBPS data rate per 6.25 KHz channel spacing or 9.6 KBPS data rate at 12.5 KHz channel spacing or 19.2 KBPS data rate for 25 KHz channel spacing and the following five additional paging only frequencies for the Business Industrial Pool channels in Puerto Rico and the U.S. Virgin Islands: 150.83, 150.92, 151.07, 151.19 and 151.31. **Note:** Med Channels 163.250, 150.775 and 150.790 MHz are not exempt, as these channels are shared with Federal Government users who must narrowband.

Hanson related the confusion about the mandate including the following myths:

Myth: Narrowbanding doubles each licensee's channels.
Truth: Narrowbanding does not entitle licensees to any extra channels.

Myth: Frequencies will shift.
Truth: Channel centers will stay the same, so there is no need to change frequencies. Licensees will narrow around their existing channel center.

Myth: Only new equipment is narrowband-compliant
Truth: Many radios manufactured after 1997, are narrowband-capable and can be reprogrammed.

Myth: Only digital radios are narrowband-compliant
Truth: Project 25 (P25) radios satisfy the narrowbanding requirement, but digital equipment is not necessary in order to narrowband.

Myth: Narrowbanding and rebanding are the same.
Truth: Rebanding is currently taking place in the 800 MHz bands and is unrelated to narrowbanding.

Hanson reminded attendees that licensees are prohibited from operating 25 KHz efficiency equipment after January 1, 2013. Non-compliance carries with it FCC enforcement action, which may include admonishment, monetary fines, or loss of license taking those systems off the air after the deadline. Since the FCC will begin refarming the new 12.5 KHz channels created by narrowbanding, it could result in interference with any wideband channels still in operation.

STATEWIDE TRAFFIC OPERATIONS CENTER and TELECOMMUNICATOR EMERGENCY TASKFORCE (TERT)

IMPROVING TRANSPORTATION SAFETY, MOBILITY AND EFFICIENCY

Connie Catterall is the *Control Room Manager of the Wisconsin Statewide Traffic Operation Center* in Milwaukee, WI. She is an active member of the *FEMA Region V Regional Emergency Communication Coordination Working Group (RECCWG)* and chairs the *Mutual Aid Asset Sub-Committe*e for that group. Ms. Catterall is the founder and past President of the *Southeast Wisconsin Communications/Resource Support Group (SEWCRSG*). Under Ms. Catterall's leadership, the SEWCRSG, in cooperation with the Wisconsin Chapters of the National Emergency Number Association, the Association of Public Safety Communication Officials, Intl., and Wisconsin Emergency Management, spearheaded the development of a statewide *Telecommunicator Emergency Response Taskforce (TERT).*

Statewide Traffic Operations Center (STOC*)*

To manage congestion and improve transportation safety, mobility and efficiency, on Wisconsin's state highways is the mission of the Statewide Traffic Operations Center (STOC). STOC monitors traffic conditions. System detectors collect speed and volume data used to create travel times and populate system congestion map. STOC has **a** direct link to the Milwaukee County Sheriff's Office Computer-aided Dispatch (CAD) as well as to the State Patrol CAD. Closed Circuit TV (CCTV) Camera images monitored by STOC Operators locate traffic incidents.

Websites and WisDOT

The LINK website, http://transportal.cee.wisc.edu/video/includes support for ITS data archiving, real time traffic information, transportation operation applications, and transportation research. The 511 website www.511.wi.gov offers quick links to road conditions, traffic information and road maps for mobile devices. It provides real-time traveler information services on the state's major highways, including the interstate system. WisDOT features 24/7 response capabilities. Highway departments or law enforcement agencies can call: 1-800-375-7302 for incidents such as signal knockdowns, bridge hits, flooding, and traffic incidents anticipated to have at least one state highway lane/ramp blocked for greater than 30 minutes.

Telecommunicator Emergency Taskforce (TERT) WI-TERT

The mission of WI-TERT is to provide and maintain a resource network of qualified telecommunicators who are available for rapid deployment to assist Public Safety Communication Centers in times of man-made or natural disasters. TERT takes a leadership role in assisting governmental agencies in the development of TERT style programs at the regional, state and local levels.

The first WI-TERT deployment was the Patrick Cudahy Plant fire and resident evacuation in Cudahy, WI, on July 5-7, 2009, during which four WI-TERT team members and two coordinators were sent.

The second deployment was on February 17-28 for which the response provided four Regional Coordinators, three COMLs, and 14 team members. Again on March 11-13 one team member was sent to the political rally/protest at the Capital in Madison, WI. Two major lessons learned from these incidents included realization that agencies still did not recognize WI-TERT's existence or function. A second lesson was that agencies had to be educated on the procedures they need to follow before making a TERT callout.